

ABSTRACT

This invention is directed to mutant SPE-C toxins or fragments thereof, vaccine and pharmaceutical compositions, and methods of using the vaccine and pharmaceutical compositions. The preferred SPE-C toxin has at least one amino acid change and is
5 substantially non-lethal compared with the wild type SPE-C toxin. The mutant SPE-C toxins can form vaccine compositions useful to protect animals against the biological activities of wild type SPE-C toxin.